

Cerium Doped Barium Titanate Crystal – Ce:BaTiO₃

Ce: BaTiO₃ is a new photorefractive crystal with superior photorefractive properties. The formation of a Self Pumped Phase Conjugate (SPPC) wave in Ce:BaTiO₃ is based on the backward stimulated photorefractive scattering in air without an external seed beam. Therefore, the reflectivity of the SPPC wave is insensitive to the incident beam's angle, inclination and pitch related to the crystal, which SPPC wave can be obtained easily.

Typical Properties:

Crystal structure:	Tetragonal 4 mm, 10 °C < T < 132 °C			
Transmission range:	0.45 ~ 6.30 μm			
Refractive Indices:	515 nm 633 nm 800 nm			
	n _o	2.4921	2.4160	2.3681
	n _e	2.4247	2.3630	2.3235
Electro Optic Coefficients:	r ^T ₁₃ =	11.7 ± 1.9 pm/V	r ^T ₃₃ =	112 ± 10 pm/V
	r ^T ₄₂ =	1920 ± 180 pm/V		

Photorefractive Properties:

Reflectivity of SPPC (oC cut)	50 - 70 % (max. 77%) for λ = 515 nm			
	50 - 80 % (max: 86.8%) for λ = 633 nm			
Two-wave mixing coupling constant:	10 - 40 cm ⁻¹			
Absorption loss:	λ:	515 nm	633 nm	800 nm
	α:	3.392cm ⁻¹	0.268cm ⁻¹	0.005cm ⁻¹

Standard Crystal size:

5x5x2 mm,	5x5x5 mm	2 - 6 sides polished
5x5x1.0 mm	10x10x1.0 mm	1 - 2 sides polished

MTI Corporation

860 South 1st Street, Richmond, CA 94804, USA

Tel: (510)525-3070 Fax: (510)525 -4058 E-mail: info@mtixtl.com Website: www.mtixtl.com